

PRE-ALGEBRA WORKSHEET

NAME: _____

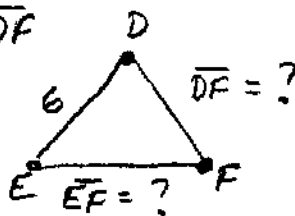
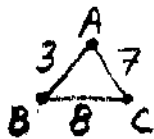
PART 1 \Rightarrow SIMILAR TRIANGLES & PROPORTIONS

PART 2 \Rightarrow USING THE PYTHAGOREAN THEOREM

PER.: _____ DATE: _____

SIMILAR TRIANGLES AND PROPORTIONS

EX) $\triangle ABC \sim \triangle DEF$, FIND \overline{DF}



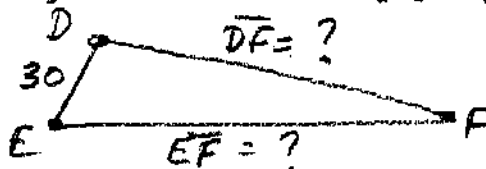
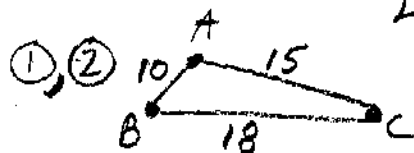
Crossproducts
 $\frac{a}{b} = \frac{c}{d}$
 $ad = bc$

\overline{AB} corresponds to \overline{DE} AND \overline{AC} corresponds to \overline{DF}

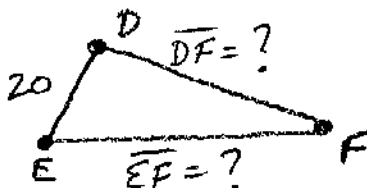
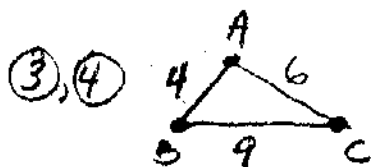
SO $\frac{\text{SMALL } \triangle}{\text{BIG } \triangle} = \frac{3}{6} = \frac{7}{\overline{DF}}$ $\Rightarrow 3 \cdot \overline{DF} = 6 \cdot 7$
 USE CROSSPRODUCTS $\Rightarrow \overline{DF} = \frac{6 \cdot 7}{3} = 14$

OR USE "MULTIPLIER" $\left\{ \begin{array}{l} \text{NOTICE: IN THIS CASE THE "MULTIPLIER" IS 2} \\ \text{SO } \overline{AB} \cdot 2 = \overline{DE} \text{ OR } 3 \cdot 2 = 6 \text{ SO } 7 \cdot 2 = 14 = \overline{DF} \\ \text{YOU WEREN'T ASKED TO FIND } \overline{EF} \text{ BUT } \overline{EF} = \overline{BC} \cdot 2 = 8 \cdot 2 = 16 \end{array} \right.$

FIND THE MISSING SIDES, $\triangle ABC \sim \triangle DEF$:



① $\overline{DF} = \square$



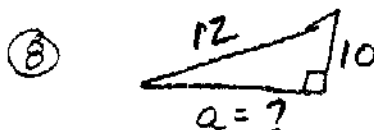
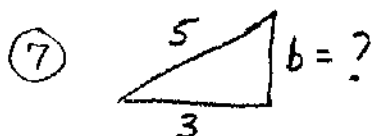
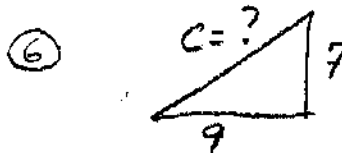
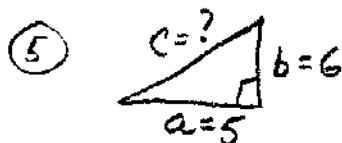
② $\overline{EF} = \square$

③ $\overline{DF} = \square$

④ $\overline{EF} = \square$

Pythagorean Theorem $\Rightarrow a^2 + b^2 = c^2$

FIND THE MISSING SIDES (USE CALCULATOR)



$b^2 = c^2 - a^2$
 $a^2 = c^2 - b^2$

↑ ↑
 TAKE SQUARE ROOTS \sqrt{x} TO FIND a, b, or c